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10/706,401	11/12/2003	Alex Zhang	200209233-1	6870

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EXAMINER	
OSMAN, RAMY M	
ART UNIT	**PAPER NUMBER**
2157	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/706,401	ZHANG ET AL.	
	Examiner	Art Unit	
	RAMY M. OSMAN	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-18* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. This action is responsive to application filed on December 15, 2007, where Applicant amended claims 1-17 and added new claim 18. Claims 1-18 are now pending.

Response to Arguments

2. Applicant's arguments filed 12/15/2007 have been fully considered but they are not persuasive.

3. Applicant argues that Smorodinsky "*does not teach spare server machines that are added to process transactions for two tiers of server machines*" because Smorodinsky does not adjust "*servers in the farm during operation*". Applicant further states that Smorodinsky is a static system and "*does not change while the system is processing transactions*".

4. ***In reply,*** Applicant appears to be arguing that the claim has a real-time characteristic to it. However, the claims fail to reflect this type of argument. It is noted that the features upon which applicant relies (i.e., "*adjusts servers in the farm during operation*" and "*change while the system is processing transactions*") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Despite the claims not reciting limitations that support this type of argument, the Smorodinsky reference does indeed teach this type of dynamic characteristic. For example, the steps mentioned in Figure 4 of Smorodinsky can be performed while the server farms are in operation.

Claim Objections

5. Claim 8 objected to because of the following informalities: On line 12 of the claim, change "two tiers;" to "two tiers; and". Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. Claims 10&18 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Firstly, the claims recite "*computer-readable medium*". Paragraph 95 of Applicants specification states that the term computer-readable media encompasses propagation signals. As such, it is clear that the scope of the claimed computer readable medium is intended to cover communication media like signals and waves. These do not fall within any of the statutory categories and is therefore not patentable subject matter. **See MPEP Chapter 2106 Section IV.B.¶4 and Chapter 2106.01**

Secondly, the claim recites "*instructions for*", which is directed to claiming a program per se and not directed to claiming a process occurring as a result of executing the program on an actual physical machine. For a claim like this to be statutory, an actual hardware device is required, where the device is programmed to operate in accordance with the instructions in order to realize the functionality of those instructions. These claims do not meet this criterion and are therefore deemed non-statutory.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3,5,7-16,18 rejected under 35 U.S.C. 102(b) as being Smorodinsky by (US Patent No 6,859,929).

9. In reference to claim 1, Smorodinsky teaches a server system comprising:

at least two scaleable tiers of server machines (column 3 lines 19-25);

a server pool including plural spare server machines (column 6 lines 66-67, Smorodinsky discloses pool of redundant servers);

means for computing an average response time for the server system to respond transaction requests at the two scalable tiers of server machines (column 4 lines 53-58 and column 5 lines 6-27); and

means for increasing a number of server machines processing transactions for each of the two scalable tiers of server machines by allocating the spare server machines to process a portion of the transactions, wherein the spare server machines are allocated to process a portion of the transactions when the average response time for the server system to respond to the transaction requests is greater than or equal to a specified average response time (column 7 lines 9-14 and column 8 line 51 – column 9 line 4).

10. In reference to claim 2, Smorodinsky teaches the server system of claim 1 further comprising means for determining costs associated with allocating the number of server machines at each of the two scalable tier of server machines (column 8 lines 22-65).

11. In reference to claim 3, Smorodinsky teaches the server system of claim 2 wherein said means for determining further comprises means for minimizing costs associated with allocating the optimized number of server machines at each of the two scalable tier of server machines (column 8 lines 22-65).

12. In reference to claim 5, Smorodinsky teaches the server system of claim 1 wherein the average response time is determined by the examining a time that the transaction requests are pending at each of the two scalable tiers of server machines (column 3 lines 19-35).

13. In reference to claim 7, Smorodinsky teaches the server system of claim 1 wherein said means for computing further comprises a non-iterative queuing model for predicting the average response time for the server system in response to measured arrival rates of transaction requests into each of the two scalable tiers of server machines, an average service demand at each of said server tiers and the number of servers allocated to each tier of server machines (column 4 line 53 – column 5 line 40).

14. In reference to claim 8, Smorodinsky teaches a method for allocating a server machine to at least two tiers of a server system, said method comprising:

computing an expected average response time as a function of transaction requests and an amount of resources allocated to each of the two tiers of the server system (column 8 lines 22-67);

determining whether an optimization problem is feasible (column 8 lines 22-67);

computing a lower bound and an upper bound on a number of server machines at each of the two tiers of said server system required to meet the average response time (column 6 line 50 – column 7 line 45);

computing a solution specifying a number of server machines allocated to each tier of said server system (column 8 lines 22-67);

computing an average time that transaction requests are pending at each of the two tiers; automatically increasing the number of server machines allocated to one of the two tiers at a point in time when the average time the transaction requests are pending at the one of the two tiers is greater than or equal to a predetermined limit (column 7 lines 9-14 and column 8 line 51 – column 9 line 4).

15. In reference to claim 9, Smorodinsky teaches the method of claim 8 wherein said computing an expected average response time further comprises: obtaining at least one input value for an average arrival rate of transaction requests into each tier of said server system; obtaining at least one input value for an average service demand at each tier of said server system; and obtaining at least one input value for the number of server machines allocated at each tier of said server system (column 4 line 53 – column 5 line 40).

16. In reference to claim 10, Smorodinsky teaches a computer-readable medium comprising instructions for:

receiving selected input parameters representative of a server system having at least two tiers of server machines; computing an average response time for the server system to respond to transaction requests pending at each of the at least two tiers of server machines; (column 4 line 53 – column 5 line 40) and automatically increasing, by a server system manager, a number of

server machines processing transaction requests at one of the two tiers at a point in time when the average time the transaction requests are pending at the one of the two tiers is greater than or equal to a specified average response time(column 7 lines 9-14 and column 8 line 51 – column 9 line 4).

17. In reference to claim 18, Smorodinsky teaches the computer-readable medium of claim 10, wherein additional server machines for processing transaction requests at the one of the two tiers of server machines are obtained from a pool of spare server machines (column 6 lines 66-67).

18. In reference to claim 11, Smorodinsky teaches an assembly for allocating server machines in a server system comprising:

at least two tiers of server machines; a pool of spare server machines that process transactions for the two tiers of server machines; (column 6 lines 15-30 & 66-67)

means for computing an average response time for said tier of server machines to respond to a plurality of transaction requests (column 4 line 53 – column 5 line 40); and

means for increasing and decreasing a number of server machines from said pool that process transactions for said two tiers of server machines when average response times for processing transactions at the two tiers of server machines exceed a specified average response time (column 8 lines 22-67).

19. In reference to claim 12, Smorodinsky teaches the assembly of claim 11 wherein the average response time is determined by the examining a time that the transaction requests are pending at each of the two scalable tiers of server machines (column 3 lines 19-35).

20. In reference to claim 13, Smorodinsky teaches the assembly of claim 11 further comprising: a contractual relationship between a system operator and at least one contracting party; and means for adjusting prices charged by said system operator to said at least one contracting party in response to a change in the allocation of server machines in said tiers of said server system (column 6 lines 15-50).

21. In reference to claim 14, Smorodinsky teaches the assembly of claim 11 wherein said means for computing further comprises a non-iterative queuing model for predicting the average server system response time in response to measured arrival rates of transaction requests into said tiers of server machines, the average service demand at said tiers of server machines; and the number of servers allocated to said tiers of server machines (column 4 line 53 – column 5 line 40).

22. In reference to claim 15, Smorodinsky teaches a server system comprising:

an open queuing network of multiple server machines with each server machine having a processor-sharing queue with a single critical resource; at least two tiers of server machines (column 3 lines 19-35); and

a computer-readable medium comprising instructions for: (i) predicting the average system response time of said multiple server machines based on the arrival rate of transaction requests into each tier of server machines averaged over all transaction request types and the number of server machines allocated at each tier of server machines(column 4 line 53 – column 5 line 40);

(ii) solving a mathematical representation of an optimization objective and constraints of said server system (column 8 lines 22-67);

(iii) determining a number of server machines for each tier of server machines in response to said predicted average system response time (column 8 lines 22-67); and

(iv) automatically increasing the number of server machines processing transactions for each of the two tiers of server machines at a point in time when an average time that transactions requests are pending at the two tiers of server machines exceeds a threshold (column 7 lines 9-14 and column 8 line 51 – column 9 line 4).

23. In reference to claim 16, Smorodinsky teaches the server system of claim 15 wherein said mathematical representation comprises: a continuous-relaxation model of the mathematical optimization system; and an iterative bounding procedure (column 8 lines 22-67).

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. **Claims 6 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Smorodinsky by (US Patent No 6,859,929) in view of Sheeets (US Patent No 6,816,905)**.

26. In reference to claim 6, Smorodinsky teaches the server system of claim 1. Smorodinsky fails to explicitly further teach a contractual relationship between a system operator and at least one contracting party; and means for adjusting prices charged by said system operator to said at least one third party in response to a change in the allocation of server machines in at least two

tiers of said server system. However, Sheets discloses allocating server machines for customer accounts for adjusting and reducing costs (column 5 lines 36-54 and column 19 lines 1-45).

It would have been obvious for one of ordinary skill in the art to modify Smorodinsky wherein a contractual relationship between a system operator and at least one contracting party; and means for adjusting prices charged by said system operator to said at least one third party in response to a change in the allocation of server machines in at least two tiers of said server system as per the teachings of sheets for the purpose of dynamic management of servers and reducing operating costs.

27. In reference to claim 17, Smorodinsky teaches the server system of claim 15. Smorodinsky fails to explicitly teach wherein said instructions for determining the number of server machines for each tier of server machines is in response to said predicted average system response time and at least one service level agreement (SLA) requirement. However, Sheets dynamically managing servers based on service level agreements (column 19 line 47 – column 20 line 15). It would have been obvious for one of ordinary skill in the art to modify Smorodinsky wherein said instructions for determining the number of server machines for each tier of server machines is in response to said predicted average system response time and at least one service level agreement (SLA) requirement as per the teachings of Sheets for the purpose of dynamic management of servers and reducing operating costs.

Allowable Subject Matter

28. Claim 4 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, into all independent claims, including all of the limitations of the base claim and any intervening claims.

29. The statement of reasons for the indication of allowable subject matter was mentioned in the Office action dated 9/10/2007.

Conclusion

30. The above rejections are based upon the broadest reasonable interpretation of the claims. Applicant is advised that the specified citations of the relied upon prior art, in the above rejections, are only representative of the teachings of the prior art, and that any other supportive sections within the entirety of the reference (including any figures, incorporation by references, claims and/or priority documents) is implied as being applied to teach the scope of the claims.

31. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAMY M. OSMAN whose telephone number is (571)272-4008. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RMO
March 14, 2008

/Ario Etienne/

Supervisory Patent Examiner, Art Unit 2157